REMARKS

A Petition for Extension of Time is being concurrently filed with this reply. Thus, this reply is being timely filed.

Applicants respectfully request the Examiner to reconsider the present application in view of the foregoing amendments to the claims and specification.

Status of the Claims

In the present Reply, claims 1 and 7 have been amended. Thus, claims 1-7 are pending in the present application.

No new matter has been added by way of these amendments, because each amendment is supported by the present specification. In fact, the amendments to claims 1 and 7 are merely editorial in nature and have support throughout the present specification, including page 4, lines 11-23. By amending these terms in order to clarify the claimed invention (e.g., changing "retains its ability to bind" to "binds to" in claim 1), Applicants are in no way conceding any limitations with respect to the interpretation of the claims under the Doctrine of Equivalents.

No new matter has been added with the amendment to the present specification. This change merely refers to the status of the parent application.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Amendment to Specification

The present specification has been amended to refer to the status of the parent application related to this case (see also the Office Action at page 2, line 6).

Information Disclosure Statement of July 28, 2004

Applicants have received the PTO-1449 forms related to the Information Disclosure Statements of June 26, 2003 and July 28, 2004. However, the Examiner did not provide initials next to three U.S. patents cited on page 1 (of 5) of the July 28 PTO-1449 Form. Thus, Applicants respectfully request the Examiner to consider these references. A duplicate copy of page 1 of the PTO-1449 form submitted with the IDS of July 28 is enclosed for the Examiner's convenience. The Examiner is respectfully requested to return an initialed copy of this PTO-1449 form to the offices of the undersigned with the next PTO correspondence.

Issues under 35 U.S.C. § 101

Claim 1 stands rejected under 35 U.S.C. § 101 as being directed to a product found in nature. Applicants respectfully traverse.

The Examiner's suggestion has been adopted, and thus this rejection has been overcome. Reconsideration and withdrawal of this rejection are respectfully requested.

Issues Under 35 U.S.C. § 112, Second Paragraph

Claims 1-6 stand rejected under 35 U.S.C. § 112, second paragraph, for various reasons related to indefiniteness (see pages 2-3 of the Office Action). Applicants respectfully traverse.

With regard to "isolated from resected and washed human gastrointestinal tract and which is adherent thereto," Applicants respectfully submit that whether the entire GI tract or just portions of it are intended does not equate to an issue of indefiniteness.

Still, Applicants further submit that Caco-2 and HT-29 cells, as recited in claim 1, are epithelial cells. More specifically, Caco-2 cells are columnar cells and HT-29 cells are squamous cells. Also, there are only two types of cells in the gastrointestinal tract: columnar cells and squamous cells. Thus, a bacterial strain that adheres to Caco-2 columnar and HT-29 squamous cells will also adhere to the columnar and squamous cells in the human gastrointestinal tract. Accordingly, the recited strain of *Lactobacillus salivarius*, by adhering to the Caco-2 and HT-29 cells, will adhere to any site within the human gastrointestinal tract. Thus, the meaning of the instantly pending claims is clear and definite to one of skill in the art, and Applicants respectfully request the Examiner to withdraw this rejection.

In addition, Applicants respectfully refer the Examiner to paragraph "5." of the first attached Declaration (pursuant to 37 C.F.R. § 1.132) by Dr. Liam O'Mahony. This Declaration was first submitted in the parent application with the reply filed on December 19, 2001. Paragraph "5." of the Declaration explains the present invention in more detail.

With regard to the "secretory products" and the term "maintained," Applicants respectfully refer the Examiner to claims 1 and 7 as presented herein as well as the present

specification starting at page 5, line 22 and ending at page 6, line 22. As can be seen from the claims, the active form of each verb is instantly recited. Applicants add that as stated in the present specification, the antimicrobial agent of the instantly claimed invention survives (or maintains its activity) at low pH or acidic environments containing, e.g., human bile or gastric juice (as present in the stomach). Thus, claim 1 recites clear and definite claim language such that one of skill in the art understands what is being claimed.

With regard to the "closely related *Lactobacilli*" phrase as recited in pending claim 2, Applicants note that the term "many" is not recited. Regarding the rest of the disputed claim language, Applicants submit that one skilled in the art would, upon reading the present specification, understand what is being claimed (see the first attached Declaration by Liam O'Mahony, Ph.D., paragraphs "14." and "15."). Three (3) other Rule 132 Declarations are submitted as well (by John Bienenstock, Atte von Wright and Peter A. Anton), which support the scientific statements made in first mentioned Declaration by Dr. O'Mahony. To one skilled in the art, closely related *Lactobacilli* refer to *Lactobacilli* with similar genetic sequences. As is even disclosed in the ten Brink reference (dated 1994; also cited in the outstanding Office Action and discussed in more detail below), the definition of bacteriocins is "proteinaceous antimicrobial compounds that exhibit a bactericidal effect against many closely related bacteria" (see Introduction, page 140; citing Tagg *et al.* (1976)). Thus, since one skilled in the art would know that bacteria may produce various types of bacteriocins, one skilled in the art would certainly know that certain bacteria could show a broad-spectrum of activity against other bacteria, but also does not inhibit many closely related bacteria.

Also attached is a fifth Rule 132 Declaration by Dr. and Pr. John Kevin Collins[1]. This Declaration was also previously submitted in the parent application as a part of a supplemental response dated February 19, 2003. Applicants respectfully refer the Examiner to paragraph "5." in the Declaration as addressing the claim language of "closely related *Lactobacilli.*" Also, as an example of what the disputed claim language means, the bacterial strain of ABP118 does not inhibit other closely related lactic acid bacteria, but at the same time will inhibit strains that are far removed from lactobacillus on the phylogenetic tree. ABP118 is also discussed in paragraph "5." of the Rule 132 Declaration.

Finally, Applicants respectfully submit that the present specification (and claims) is given the presumption of correctness, and the phrase "closely related bacteria" is well understood in the art.

With regard to "retains its ability . . .", this claim language has been amended to refer to just binding. Thus, one of skill in the art would understand that claims 1 and 7 recite clear and definite claim language.

In summary, Applicants respectfully submit that the presently pending claims recite clear and definite claim language, where one having ordinary skill in the art would readily understand what is being claimed by the present invention. Therefore, the pending claims fully comply with the provisions of 35 U.S.C. § 112, second paragraph. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

---

[1] Applicants note that an Interview between Applicants' representatives, Dr. Collins and Examiner Marx was conducted during prosecution of the parent application.

Deposit of Biological Material

Upon grant of a U.S. patent, all restrictions on the availability of the deposit (accession numbers NCIMB 40829 and NCIMB 40830) will be irrevocably removed.

Issues under 35 U.S.C. § 112, First Paragraph

Claims 3 and 4 stand rejected under 35 U.S.C. § 112, first paragraph, based on a question of availability of the deposited strains (see the Office Action at pages 3-4). Applicants respectfully traverse.

In the outstanding Office Action, the Examiner states, ". . . However, it is unclear if the starting material were readily available to the public at the time of invention". The Examiner also questions if the deposits mentioned on page 4 of the present specification meets all deposit criteria as set forth in 37 C.F.R. §§ 1.801-1.809.

The present specification at page 4 discloses the deposit receipts of biological material deposit (accession numbers NCIMB 40829 and NCIMB 40830), wherein Applicants have complied with all deposit requirements. Applicants also respectfully refer the Examiner to the statement regarding revocation presented above.

Thus, the present specification does enable one skilled in the art to make and use the present invention. Applicants respectfully request the Examiner to withdraw this rejection.

Issues Under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated or, in the

alternative, under 35 U.S.C. § 103(a) as being obvious over K. Arihara *et al.* ("Salivacin 140, a novel bacteriocin from Lactobacillus salivarius subsp. salicinius T140 active against pathogenic bacteria," *Letters in Applied Microbiology*, Vol. 22, pp. 420-424 (1996); hereinafter "Arihara") (see pages 6-7 of the Office Action).

Further, claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over B. ten Brink *et al.* ("Antimicrobial activity of lactobacilli: preliminary characterization and optimization of acidocin B, a novel bacteriocin produced by Lactobacillus acidophilus M46," *Journal of Applied Bacteriology*, Vol. 77, pp. 140-148 (1994); hereinafter "ten Brink") (see pages 7-8 of the Office Action).

Finally, claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Suhr-Jessen *et al.* (WO 89/05849).

Applicants respectfully traverse, and request reconsideration and withdrawal of these rejections.

The Rejections under § 102

The Examiner states that all three references of Arihara, ten Brink, and Suhr-Jessen '849 allegedly anticipate the present invention because the disclosed microorganisms live, or are likely to live, in the human gastrointestinal tract, are of the same class, and are taught to be effective against substantially the same microorganisms (see Office Action at, e.g., page 5, last paragraph). However, Applicants respectfully traverse this rejection because the present invention is directed to a biologically pure culture of a strain of *Lactobacillus salivarius* isolated

from resected and washed human gastrointestinal tract and which is adherent thereto. The present invention also inhibits a broad range of Gram positive and Gram negative microorganisms, and secretes a product having antimicrobial activity into a cell-free supernatant, wherein the activity is produced only by growing cells and the activity is destroyed by proteinase K and pronase E. The present invention maintains the inhibitory properties in the presence of physiological concentrations of human bile and human gastric juice. In contrast, the cited references of Arihara, ten Brink, and Suhr-Jessen '849 do not disclose all features of the present invention, including the adherence of *Lactobacillus salivarius* to the human gastrointestinal tract.

Thus, each of the rejections under 35 U.S.C. § 102(b) is overcome because "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Thus, because of the lack of disclosure of all features as instantly claimed, the rejections in view of each of Arihara, ten Brink and Suhr-Jessen '849 are overcome. Reconsideration and withdrawal are respectfully requested.

The Rejections under § 103(a)

The Examiner further states, "In the alternative, even if the claimed microorganism is not identical to the referenced microorganism with regard to some unidentified characteristics, the differences between that which is disclosed and that which is claimed are considered to be so slight that the referenced microorganism is likely to inherently possess the same characteristics

of the claimed microorganism particularly in view of the similar characteristics which they have been shown to share." (See Office Action, pages 6, 7, and 8.) Applicants also traverse the rejections in the alternative under 35 U.S.C. § 103(a) for the following reasons.

(i) The Present Invention and Its Advantages

It is well known in the art that microorganisms can be used as probiotics, including the frequently utilized species of *Bifidobacterium sp.* and *Propionibacterium sp.* It is also well known in the art that the source of the microorganism affects the survival of the microorganism, as well as the desired anti-microbial activity and *in vivo* effects. Some of the desired physiological and biochemical effects include the competitive exclusion of pathogens and other undesirable microorganisms from the intestinal tracts of humans. With regard to these *in vivo* effects and anti-microbial activity, bacteriocins produced by *lactobacilli* have been of keen interest. However, as even mentioned by Applicants, many of those bacteriocins were found to have limited inhibitory properties because they have narrow host ranges and were active only against other lactobacillus species (see specification, pages 2-4).

To the contrary, according to the presently claimed biologically pure cultures, a bacteriocin having *in vivo* traits such as competitive exclusion of pathogens and other undesirable microorganisms has been isolated. The instantly claimed strains are intended for use as probiotic agents in humans, wherein this type of microorganism is totally unexpected over the prior art.

The present invention accomplishes such advantages by incorporating the claimed features. For example, the present invention is directed to a strain of *Lactobacillus salivarius* that adheres to and is isolated from resected and washed human gastrointestinal tract. The *Lactobacillus salivarius* leads to improved properties, such as inhibiting a broad range of Gram positive and Gram negative microorganisms. These properties lead to desirable *in vivo* effects, even in the presence of physiological concentrations of human bile and human gastric juice.

However, each of the cited references fails to disclose or suggest a microorganism that can be used as a probiotic, which inhibits a broad range of other microorganisms in the presence of physiological concentrations of human bile and human gastric juice, as according to the present invention and the present claims. This will be discussed in more detail below.

(ii) Distinctions Between the Present Invention and Arihara, ten Brink and Suhr-Jessen '849

As an initial matter, Applicants respectfully request the Examiner review the contents of the attached Declarations (see in particular paragraphs "7-23." of Dr. O'Mahony's Declaration; see paragraphs "6-7." of the Declaration by Dr. Collins).

As mentioned, the present invention is directed to a strain of *Lactobacillus salivarius* having specific properties. Specifically, the present claims are directed to a biologically pure culture of a *Lactobacillus salivarius* strain isolated from resected and washed human gastrointestinal tract and which is adherent thereto, which a) binds to human epithelial cells and inhibits a broad range of Gram positive and Gram negative microorganisms; b) secretes a

product having antimicrobial activity into a cell-free supernatant, wherein said product having antimicrobial activity is produced only by growing cells and wherein said antimicrobial activity is destroyed by proteinase K and pronase E; and c) maintains the properties of inhibiting the Gram positive and Gram negative microorganisms, and secreting said product having antimicrobial activity, in the presence of physiological concentrations of human bile and human gastric juice. However, the references of Arihara, ten Brink and Suhr-Jessen '849 fail to disclose or suggest a microorganism isolated from and adherent to human gastrointestinal tract or the probiotic advantages thereof.

The Examiner states that "the differences between that which is disclosed and that which is claimed are considered to be so slight that the referenced microorganism is likely to inherently possess the same characteristics of the claimed microorganism particularly in view of the similar characteristics which they have been shown to share" (see Office Action at, e.g., pages 6, lines 2-6 regarding the Arihara reference). However, Applicants submit it would be incorrect to assume that bacterial strains could exert any influence on the gastrointestinal microflora or that the bacterial strains could interact with the human host resulting in certain health benefits. Overall, the characteristics between the present invention and the referenced microorganisms are not the same. This is because Arihara, ten Brink and Suhr-Jessen '849 describe a source of microorganism that differs from the present invention. Further, the three cited references do not describe a microorganism that can adhere to the human gastrointestinal tract.

One important aspect of the present invention is the source of the *Lactobacilli*. The claimed *Lactobacilli* are isolated from and are adherent to human gastrointestinal tissue. Further,

the claimed *Lactobacilli* have no associated pathology. This is different from *Lactobacilli* isolated from feces, which has drawbacks. This is because the fecal flora represents the luminal contents of the distal large bowel, whereas the mucosa adhering microflora represents a highly specialized microenvironment. Adherent strains must be able to survive a more aerobic environment than that present in the lumen. In addition, adherent strains must survive and thrive in an immunologically hostile environment. As evidence of the source and advantages of the claimed *Lactobacilli*, Applicants respectfully refer the Examiner to the attached Declarations by Dr. O'Mahony, Pr. Anton, Pr. Bienenstock, Pr. Atte Von Wright and co-inventor Collins. Such advantages include the immunomodulatory properties of the present invention.

As mentioned, it is also well known in the art that the source of the microorganism affects the survival of the microorganism, as well as the desired antimicrobial activity and *in vivo* effects. Thus, the claimed microorganisms are completely different from those of the cited references because the sources are different.

For example, the strains in the ten Brink reference are not even indigenous to the infected host species. The ten Brink microorganisms were isolated from different types of food, feeds, human dental plaque and feces. As mentioned, there are drawbacks for bacteria isolated from feces. Or there are advantages in isolating a microorganism from the human gastrointestinal tract.

Similarly, the source of the Arihara microorganism is the Japanese pampas grass leaves grown close to an animal barn (see its Abstract), which may have been contaminated by feces excreted by a domesticated animal. Although the Examiner states that these strains were isolated

from the human gastrointestinal tract (see page 5, last paragraph of the Office Action), Applicants respectfully submit that there exists no disclosure in Arihara of an attempt to isolate lactic acid bacteria from washed and resected gastrointestinal tissue.

Similarly, the source of the microorganisms of Suhr-Jessen '849 is from pigs (see the Abstract), not the human gastrointestinal tract.

Thus, the sources of the referenced microorganisms are different from that of the claimed *Lactobacillus salivarius* (*i.e.*, human). In contrast, the claimed *Lactobacillus salivarius* are isolated from resected and washed human gastrointestinal tract (see pending claim 1). As mentioned, the source of the microorganism contributes to the desired antimicrobial properties and *in vivo* effects.

Thus, the present invention is patentable over the cited references for a further reason. The anti-microbial and *in vivo* effects of the claimed *Lactobacillus salivarius* are different from that of the referenced microorganisms. Applicants submit that there are improved properties of the present invention over that of the cited microorganisms. Such advantages include species specificity; the strains are selected/adapted to the human environment, where one skilled in the art would not expect adaptation in any other environment; and the claimed microorganisms are host specific. Such advantages are possible because the adhesion of the claimed *Lactobacillus salivarius*, which is isolated from human gastrointestinal tract, contributes to the desired anti-microbial activity or *in vivo* effects. As evidence of the adherence of the claimed microorganisms, Applicants respectfully refer the Examiner to Dr. O'Mahony's Declaration which explains the adherence of the *Lactobacillus salivarius* with *in vitro* and *in vivo* adhesion

assays (see paragraphs "20-21."). The other attached Declarations further support the novel traits and advantages of the present invention. These advantages and, as mentioned, the adherence to the human gastrointestinal tract, are lacking in the three cited references. In particular, Applicants respectfully refer the Examiner to paragraph "7." of Dr. Collins' Declaration that refers to the specific properties of the claimed invention which are absent in the strains of the cited references.

Further, as a probiotic agent, the strains must meet certain criteria laid down by the Lactic Acid Bacteria Industrial Platform (LABIP; Guarner and Schaafsma, "Probiotics", *Int. J. Food Microbiol.* (1998); 39:237-238; see Annex I; see Declaration of Dr. O'Mahony, paragraph "7.") and others for the selection of probiotic microorganisms intended for use in humans. Paragraph "7." of Dr. Mahoney's Declaration also refers to the article of Gerald W. Tannock, "Probiotic properties of lactic-acid bacteria: plenty of scope for fundamental R&D," *TIBTECH*, Vol. 15, p. 270-274 (1997). One copy of this reference is also attached for the Examiner's convenience. The biologically pure cultures of the strains of *L. salivarius* as instantly claimed were deliberately isolated from the human gastrointestinal tract (*i.e.*, the environment in which they will be required to function) in order to ensure compliance with the recommended criteria laid down by the LABIP. The claimed strains from appendices and sections of the large and small intestine of the human gastrointestinal tract obtained during reconstructive surgery are even a novel approach over conventional methods for isolating probiotic bacteria (see Declaration by Pr. Bienenstock, paragraph "4."). The compliance with LABIP leads to the desired antimicrobial activity and *in*

vivo effects. The same cannot be said of any of the strains of Arihara, ten Brink, or Suhr-Jessen '849.

For example, the *Lactobacillus salivarius* subsp. *salicinius* of Arihara was isolated from environments other than the human gastrointestinal tract. The Arihara reference does not even suggest or teach of such isolation. The source of the microorganism leads to differences in antimicrobial activity in humans. As mentioned, the fecal flora represents the luminal contents of the distal large bowel, whereas the mucosa adhering microflora represent a highly specialized microenvironment. Adherent strains must be able to survive a more aerobic environment than that present in the lumen. As stated in the Declaration of Dr. O'Mahony, bacteria within luminal contents do not necessarily interact with the gastrointestinal mucosa.

As further evidence that Arihara does not make the present invention unpatentable because of different antimicrobial properties, the Arihara reference does not even discuss relevant factors affecting bacterial survival in the human gastrointestinal tract, such as the mucosal immune system. There is even no concept in Arihara of complex intimate molecular interactions between the host and bacterium that would be required to induce probiotic health benefits. Also, the cited microorganisms of Arihara even inhibit growth of other closely related lactobacilli (see Table 2, p. 422), unlike the present invention. Even the salivacin 140 of Arihara requires a high initial pH for production. This is not true of the present invention, where the antimicrobial factors produced by the claimed strains do not require a high initial pH.

Thus, in considering all these differences, the antimicrobial activity and *in vivo* effects of the Arihara microorganisms differ from that of the present invention.

Similarly, ten Brink has different properties from that of the present invention. Ten Brink discloses approximately 1,000 lactobacillus strains isolated from various sources. The rationale underlying the isolation and screening program is the identification of lactic acid bacteria that will be suitable for food preservation. This is not the same as isolated bacteria that could be active within the human gastrointestinal tract by influencing pathogen adhesion or invasion. The strains of *L. salivarius* as claimed were identified by biochemical means and SDS-PAGE analysis as strains of *Lactobacillus salivarius* subsp. *salivarius.* Thus, the respective strains are different.

Even the two bacteria that ten Brink et al. focus on are different from the present invention. The disclosed *L. salivarius* M7 produces salivaricin B, which is primarily active against related lactobacilli (unlike the present invention). Salivaricin B is not even heat stable, whereas ABP118 is heat stable. The acidocin B produced by ten Brink's *L. acidophilus* M46 fails to retain activity following heat treatment at 121°C.

In contrast, under similar conditions, ABP 118 retains at least 50% of its activity (see Table 9 of present specification). In other words, the secretory products are maintained in the presence of physiological concentrations of human bile and human gastric juice (see claim 1), which cannot be said of the secretory products of the ten Brink strains. The Examiner states that these strains are likely to live within the human gastrointestinal tract. However, there were no studies performed in ten Brink to assess the acid and bile tolerances of these strains. Further, the strains of ten Brink would not survive lower gastrointestinal tract transit (see Declaration of Dr. O'Mahony, paragraph "17.").

Similarly, Suhr-Jessen '849 has different properties from the present invention. First, the Suhr-Jessen '849 bacteria were isolated from pigs, not humans. Second, the disclosed bacteria were to be used for human consumption in fermented milk products, or in veterinary compositions for treating gastrointestinal diseases (see Abstract). However, the authors of Suhr-Jessen '849 did not consider the intimate interactions that occur between a newly ingested bacterium and its specific host environment. There are so many factors (*i.e.*, species-specific immunological parameters, species-specific attachment sites, already present microflora, health status of host, current medications, etc.) to consider, that one cannot predict the intimate interactions between a newly ingested bacterium and its host environment. In other words, a strain isolated from a pig reacts differently to a human host than would a *L. salivarius* isolated from the human gastronintestinal tract. As mentioned, the claimed biologically pure culture of a strain of *L. salivarius* was deliberately isolated form the human gastrointestinal tract in order to ensure compliance with the recommended criteria laid down by the LABIP (see specification, pages 12-13). It would not be sufficient to extrapolate from animal studies (*i.e.*, pigs) and species-specific interactions to the human situation.

The Examiner states that examples 4 and 5 of Suhr-Jessen '849 describe acid and bile tolerances of the strains (see the Office Action at page 7, third paragraph). However, Applicants submit that the assays were not carried out using human bile or human gastric juice. The composition of human bile, and thus antagonistic activity, is different from *Bactooxgall* used by the authors of Suhr-Jessen '849. Further, and as mentioned, one cannot predict the intimate

interactions between a newly ingested bacterium and its host environment. Thus, there is a further difference between this cited reference and the present invention.

Therefore, because the anti-microbial activity of the disclosed microorganisms differs from that of the claimed *Lactobacillus salivarius*, where, *inter alia*, the referenced microorganisms are derived from different sources (*i.e.*, Japanese pampas grass leaves near a barn, pigs) and do not display the adherence to human tissue unlike the present invention, Applicants respectfully submit that the Arihara, ten Brink, and the Suhr-Jessen '849 references do not disclose all features and advantages of the present invention and *prima facie* cases of obviousness have not been established. This is because U.S. case law squarely holds that a proper obviousness inquiry requires consideration of three factors: (1) the prior art reference (or references when combined) must teach or suggest all the claim limitations; (2) whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process); and (3) whether the prior art establishes that in making the claimed invention (or practicing the invention in case of a claimed method or process), there would have been a reasonable expectation of success. *See In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991); *see also In re Kotzab*, 55 U.S.P.Q.2d 1313, 1316-17 (Fed. Cir. 2000); *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Here, not even the requirement of disclosure of all claimed features has been satisfied with respect to any of the three § 103(a) rejections (e.g., feature a) of pending claim 1). Thus, these obviousness rejections have been overcome.

Applicants add that the requisite motivation and reasonable expectation of success are lacking as well. *In re Vaeck; supra.* For instance, the Examiner is unreasonably interpreting the language of each of Arihara, ten brink, and Suhr-Jessen '849 too broadly. While patents/references are relevant as prior art for all they contain, they cannot be relied upon to teach embodiments that are not reasonably suggested to one having ordinary skill in the art. *See Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804 (Fed. Cir. 1989). Here, Arihara, ten Brink and Suhr-Jessen '849 describe a source of microorganism that differs from the present invention and thus the references' biological strains have different probiotic properties. These references do not teach an embodiment as instantly claimed (e.g., biologically pure culture of a strain that binds human epithelial cells and inhibits a broad range of Gram positive and Gram negative microorganisms). Thus, the requisite motivation and reasonable expectation of success are also lacking and *prima facie* cases of obviousness have not been established.

Reconsideration and withdrawal of these § 103(a) rejections are respectfully requested.

Summary

In view of the above remarks, Applicants respectfully submit that the present claims encompass subject matter that is patentably distinguishable from the cited references. Specifically, the present claims are patentable over the Arihara, ten brink, and Suhr-Jessen '849 references. Accordingly, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Conclusion

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: June 12, 2006

Respectfully submitted,

By J. Murphy Jr. #28977

MaryAnne Armstrong, Ph.D.
Registration No.: 40,069
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant

Attachments:

PTO-1449 Form
Declaration (37 C.F.R. § 1.132) (Dr. Liam O'Mahony - from parent application)
Declaration (37 C.F.R. § 1.132) (John Bienenstock - from parent application)
Declaration (37 C.F.R. § 1.132) (Atte von Wright - from parent application)
Declaration (37 C.F.R. § 1.132) (Peter A. Anton - from parent application)
Declaration (37 C.F.R. § 1.132) (Dr. John Kevin Collins - from parent application)
Gerald W. Tannock, "Probiotic properties of lactic-acid bacteria: plenty of scope for fundamental R&D," *TIBTECH*, Vol. 15, p. 270-274 (1997)

MAA/ETP/las